

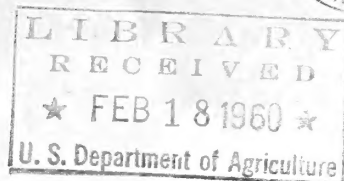
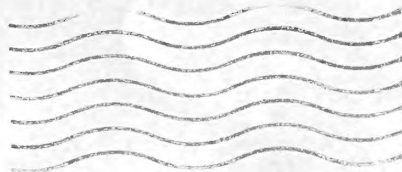
62

RETURN POSTAGE GUARANTEED

Gordon M. Hoyt, Orchids

SEATTLE HEIGHTS, WASHINGTON

[1960]



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Per Request 2/3/60

Experiments in Genetics

We have now initiated two of a series of these experiments which we hope and believe will add to the knowledge of inheritance in Orchids and have invited all of you who are interested in this phase of Orchid Culture to join us. We intend to keep a record of the results which will be eventually published when sufficient results are in and which we believe will be of distinct benefit to all of us. We did not sufficiently anticipate the great interest that would be evidenced by all of you in this project and are, therefore, still in the process of delivering the original orders received from the first two announcements. However, the more seedlings that are raised the more worthwhile the results become and we have gone ahead and planted a lot more seed from these two original crosses and are inviting all who have not as yet joined in these ventures to do so. We are asking you to report a short description of the color and form of the flowers as they bloom and other pertinent information on a questionnaire which we will supply. It is our goal now to be able to report on several thousand plants from each of these crosses.

No. 1 LH94 C Nellie Roberts 'Tyoh' (C Bow Bells x C Dowiana Aurea, Sheppeys Var.) x self.....\$2.00 ea.; 6 for \$9.00; 12 for \$15.00

Here we have selfed the best Nellie Roberts we have bloomed out of many. A large flower with a shape similar to and equal to the best Bow Bells. The color is mauve even though one parent is white with white and yellow lip and the other is yellow with colored lip. A self cross should, according to theory, recombine the chromosomes in the resulting offspring in many different combinations. The colors expected would be mauve, white with colored lip, white, yellow, and there could be others. We are extremely well pleased with the seedlings. They are very uniform growing with Bow Bells vigor and the leaves have a very heavy substance — just as firm as cardboard. Expect delivery in November.

No. 2 LH75 Potinara Tripoli 'Tyoh' AM-AOS (BLC Ishbel x SLC Romona) x self.....3 for \$6.00; 6 for \$10.00

This flower has petals and sepals of a salmon-red color, lip of deep purple crimson. Good form and substance, a vigorous grower. Four different genera are involved: namely, Cattleya, Laelia, Brassavola and Sophronitis. In this self cross, the recombination of the chromosomes should result in a wide range of interesting types and some very fine flowers should result. Delivery of new orders probably not before spring 59. You may reserve seedlings and pay when ready for delivery, if you wish.

Additional Awarded and Exhibition Type Orchids

In our last offering, we listed a number of our fine Exhibition and Stud plants. Here we are naming a few additional ones. Write for our special list just out on exhibition and stud plant divisions now available.

CATTLEYAS

LC Grubstake 'Valiant' AM-AOS
C Bow Bells 'Canadian Welcome' AM-RHS
BLC Norman's Bay 'Ralph Wagner' AM-AOS
C Bob Betts 'White Dawn' AM
C Bow Bells 'Snowball' HCC
LC Bonanza 'Francis Wilkinson' AM-ODC
BLC Norman's Bay 'Countess' AM-AOS
LC Tethys 'Midnight' AM-AOS
LC Anubis 'Criterion' Gold Metal
C Leah Addis 'Vallamar'
BC Miranda 'Chartreuse Queen' AM-AOS
BLC Orange Glory 'Empress' FCC-RHS

CYMBIDIUMS

Balkis 'Perfection'
Balkis 'Snowden'
Balkis 'Montecita'
Jena Bailey 'Aridine' AM-AOS
Delrosa 'The Queen' AM-AOS
Bodmin Moor 'Twin Brook' AM-AOS
Ethel Ward 'Sea Green' AM-AOS
Sussex 'Laelia Sasso' HCC-NSW
Janette 'Enid Haupt' AM-AOS
Starlight 'FCC-RHS'
Cariga 'Golden Glory' AM-RHS
Princess Elizabeth 'Maisie' AM-NSW

Seed and Pollen Bank

We are taking this opportunity to announce our new seed and pollen bank. After considerable time spent in experimentation, we have been able to keep seed fresh for a number of years. We have just recently bloomed a seedling, and after seeing and evaluating the results, replanted the original seed and obtained satisfactory germination. Pollen when properly stored can, we understand, be kept viable for at least a year and perhaps for a lot longer. We plan to continue this study. We have just recently issued a separate list of seed available and invite those interested to drop us a card and we will be glad to send this offering.

Blue Ribbon Orchid Flasks

During the past year we have offered from time to time transplanted 500cc flasks of outstanding crosses. The demand for these has been substantial and, as a result, we are now offering a greater selection. One of the greatest reasons for the success is the new formula we are using when these bottles are transplanted. This results in large, husky seedlings (50 or more) ready for community pots that are very easy to grow. A few are generally ready to go into individual pots direct from the flask. In addition, we furnish complete growing instructions; our time tested method.

LW97	BLC Norman's Bay 'Ralph Wagner' AM-AOS x LC Bonanza	
	'Mildred Wagner' AM-AOS	\$25.00
	Outstanding crosses of the day. Glowing mauve expected. Delivery Oct.-Nov.	
LH99	SLC Brandywine (SLC Lindores '****' x SLC Anzac 'Orchidhurst' FCC-RHS	35.00
	Expect top red. Here using Black & Flory's best Lindores. Delivery May & June '59.	
LH107	SLC Anzac 'Orchidhurst' FCC-RHS x self	35.00
	Famous red Orchid, a husky grower, selfed should produce fine reds. A few left. Delivery Sept.-Oct.	
LH113	LC Coventry 'Gretchen Hoyt' AM-AOS x LC Edgard Van Belle 'Golden'	25.00
	Fine orange-yellow x with golden yellow. Delivery Sept.-Oct.	
LH114	LC Golden Joy 'Dream' x LC Grande 'Jules Furthman'	25.00
	Grande a proven yellow stud plant with perfect yellow. Delivery Sept.-Oct.	
LH115	LC Edgard Van Belle x LC Grande 'Jules Furthman'	25.00
	Here Grande is crossed with fine new strain of yellows. Delivery Sept.-Oct.	
LH116	LC Derrynane alba 'Seattle Heights' HCC-ODC x LC Edgard Van Belle	25.00
	White petals and sepals with solid red lip crossed yellow. Delivery Sept.-Oct.	
LH118	LC Bonanza 'Mildred Wagner' AM-AOS x LC Bonanza 'Francis Wilkinson'	25.00
	AM-ODC This sybiling cross of award plants should produce some superior types. Delivery Sept.-Oct.	
LH131	LC Bonanza 'Mildred Wagner' AM-AOS x LC Seattle 'Dolores' HCC-ODC	35.00
	This fine Bonanza with Black & Flory's finest shape dark mauve. Delivery April-May '59.	
LH135	LC Golden Concolor 'Golden Fleece' x SLC Anzac 'Orchidhurst' FCC-RHS	25.00
	Yellow with all yellow lip. Expect orange to red. Delivery Sept.-Oct.	
LH140	LC Edgard Van Belle x LC Seattle 'Dolores' HCC-ODC	25.00
	Yellow with dark purple should give bronze and unusual colors. Delivery April-May '59.	
LH156	C Guttata 'Leopardina' x self	15.00
	Bloomed with 38 flowers on one spike. Green bronze, crimson lip. Delivery April-May '59.	
LH157	C Guttata 'Leopardina' x LC Elstead Gem	15.00
	Same as above crossed true green, clear color with crimson lip, small. Delivery April-May.	
LH138	C Bow Bells 'Richmond 1' x self	50.00
	One of best. Award quality. Bloomed with five flowers to stem. Delivery Oct.-Nov.	
LB3083	C Loddigesi 'Harrisoniae alba' x C Bow Bells 'Susan'	25.00
	Expect spray type whites: Perhaps some with BB shape. Delivery Nov.-Dec.	
CH62	Cymbidium Chesham x Balkis 'Belle' BA-ODC	25.00
	First pastel, green to pink with Superior white Balkis. Delivery Sept.-Oct.	
CH76	Cymbidium Armada x Alexanderi 'Westonbirt' FCC-RHS	25.00
	Fine clear green diploid with most famous stud. Delivery April-May '59.	
VH50	Miltonia St Andre x Odontioda Astoria 'Adonis'	25.00
	A Vuylstekeara. Shades of pink. Grow like Miltonias, rarely offered. Delivery Sept.-Oct.	
OH51	O Talulah x O Crispania 'White'	25.00
	Expect many flowered sprays of white flowers. Delivery Oct.-Nov.	
OH53	O Faidherbe 'Profusion' HCC-ODC x Crispum Premier 'White Lip'	25.00
	Branching spikes fine shape purple with large all white. Delivery Oct.-Nov.	

These will be shipped out of flask via air postpaid. If desired, shipped in flask, add \$1.50. Foreign orders FOB Seattle with an allowance as if shipped to eighth parcel post zone in U. S. Half flasks may be ordered, priced at 60% of flask price. Shipped out of flasks in polyethylene bags. Guaranteed safe delivery.

Cattleya Seedlings

Bare-Root Community Pot Seedlings — Ready for Individual Pots

- LH82 C Bicolor 'Curson' x SLC Anzac 'Orchidhurst' FCC-RHS** 1.50
Bronze-Green Bifoliate with red. Interesting and unusual types expected.
- LH83 C Mossiae 'Reineckiana' x C Bob Betts 'April'** 1.50
Probably mauve although an old English magazine says will give white with colored lip. Regardless expect Spring bloomer.
- LH86 Thurderniana x C Bicolor 'Curson'**.. 1.50
Fine, good-shaped yellow with Bicolor. Expect Bronze-greens to yellows.
- LW97 BLC Norman's Bay 'Ralph Wagner' AM-AOS x LC Bonanza 'Mildred Wagner' AM-AOS** 2.50
Two of the best of these outstanding crosses mated. Should produce many outstanding intense mauve flowers.
- LH98 BC Thalie (BC Deesse x C Odalisque) x self.** 1.50
Fine, white Brasso with white. Expect Flushed white, pure white, perhaps white colored lip, large fine flowers.
- LH101 SLC Miami 'Red Coat' x SLC Anzac 'Orchidhurst' FCC-RHS** 2.50
Remake of our H32 with identical parents. First of H32 should bloom shortly. Fine grower. Exhibition reds expected.
- 1940 BLC Nanette x LC Grande 'Jules Furthman'** 2.50
White Brasso with famous yellow stud. Should bloom at a different season than Laello Cattleya yellows.
- 1941 BLC Nanette x LC Canberra** 2.50
Same white, has a stripe of purple down base of lip. Expect fine yellows, Canberra outstanding yellow.
- LH69 C Tethys 'Leo' x LC Seattle 'Village Prince'** 1.50
One of the darkest Tethys crossed with large fine shape mauve.
- LH103 BLC Edwin Chong x LC Seattle 'Dolores' HCC-ODC** 1.50
Fine large dark lavender x with best of Seattle, judged with only one bloom.

2 and 3 Growths

- LH78 C Guttata 'Leopoldii' x C Bob Betts 'April'** 2.50
First, bloomed with 30 flowers crossed with best quality spring blooming white.
- LH45 C Nellie Roberts 'Thanksgiving' x LC Lorraine Shirai** 3.00
Expect all colors but half should be yellow. Some with Bow Bells shape.
- LH71 LC Derrynane x LC Seattle 'Village Prince'** 3.00
Two large fine shaped flowers, Mauve with red lip. Expect exhibition types.
- LH52 LC Rosemary Upton (C Bow Bells 'Eagle' x L Pumila 'alba') x self** 3.50
While both parents were pure white, a large mauve resulted. A self would produce some miniature white Bow Bells type flowers of fine shape.
- 607 LC Rincon Hill 'Bonanza' x LC Grub Stake 'El Dorado'** 3.00
Expect spring blooming deep rose-purple. Parents award quality.
- T115 C Joyce Hannington x Joyce Hannington** 3.50
Two fine whites crossed. Should rank with Bow Bells.
- 1417 C Loddigessii alba x LC Elinor** 3.00
Bifoliate type, white crossed with fine yellow.
- LH81 C Bicolor 'Curson' x C Bob Betts 'April'** 2.50
Bronze-Green Bifoliate crossed with fine white.

3 and 4 Growths

- 357 C Arctic Circle x C Bob Betts 'Polar Bear' AM-AOS** 6.00
Expect a good formed flower, good substance and clear white color.
- 680 C Hardyana alba 'Queen Mary' FCC-MOS x LC Grande 'Jules Furthman'** 5.00
Color should be deep yellow S & P with reddish-purple lip.
- 266 C Ardentissima 'Negus' x LC Kismet 'The Spinney' AM-RHS** 10.00
Some have bloomed. Form and substance good and color excellent. Rich purple.
- LH33 C Rose Andrade x C Bob Betts 'April'** 6.00
First white with all white lip, with finest type Bob Betts.
- 592 LC Bonanza 'Comstock Lode' x C Ardentissima 'Negus'** 5.00
Darkest strain of Ardentissima bred to one of the best Bonanzas.
- 536 LC Bonanza 'Gaiety' x BLC Norman's Bay 'Royal Bride' AM-RHS** 7.50
Some fine ones have bloomed. Warm crimson-purple deep lip.

Cattleyas

Flowering Size or Near Flowering Size

B1551 C Angus x LC Princess Margaret 'Langley' 10.00
Producing many fine, large, good-shaped mauve flowers. Vigorous growing, easy blooming.

B1547 Pot. Red Friar x LC Princess Margaret 'Langley' 15.00
Salmon red Pot. with same as above. This is probably Black & Flory's most famous and dependable stud.

B1687 LC Eva Robinson x LC Princess Margaret 'Langley' 12.50
This first named is famous in its own right and this combination should give the tops in mauve flowers.

B1896 C Bow Bells x LC Aconcagua FCC-RHS 12.50
A speculation, white, with white with colored lip. 3 1/2" pot size to bloom within a year.

B1543 Rosemary Upton (C Bow Bells 'Eagle' x L Pumila alba) 15.00
Mauve with interesting breeding possibilities. Very round flat flower, good size. Pumila all white.

DCH42 SLC Volga (SLC Soulangue x C Angus) 4 to 6 adult bulbs 15.00
All divisions of same clone. Blooms for us twice a year. Very rapid grower; large, heavy substance, purple.

LH59 C Bob Betts (C Bow Bells x C Mossiae var. Wagneri) 20.00
Selected varieties of one of the finest spring blooming whites. 3 adult bulb divisions.

LH428 C Bow Bells (Edithiae x Suzanne Hye) 3 adult bulb divisions 25.00
The original Langley strain. Still probably the best of the whites. Can be controlled to bloom at Christmas.

Cymbidium Seedlings

Bare-Root Seedlings — Ready for Individual Pots

CH39 Blue Smoke 'Fine Var.' x Balkis 'Belle' BM ODC 1.75
Named San Francisco. Made with various clones has won a number of awards already. Green to white to yellow shades.

CH40 Prince Charles 'Josiah' BM ODC x Balkis 'Belle' BM ODC 2.50
First light pink, clear color, fine shape and substance. 19 flowers to spike. Balkis fine shape white with pink lip.

CH41 Balkis 'Belle' BA-ODC x self 2.50
This should produce some superior forms of Balkis. Undoubtedly flushed pink and white flowers.

CH42 Nila x Green Giant 1.75
Expect some fine green diploids. Large and heavy substance. Green Giant 6-7/16" across petals. Solid fern green, yellow lip, spotted red.

AF74 Alexanderi 'West.' FCC-RHS x Prince Charles 'Josiah' BA-ODC 1.75
Outstanding whites and flushed flowers expected. This clone of P.C. has clear flowers without stripes.

In Individual Pots

	8-12"	12-18" growths	2
CH17 Prince Charles 'El-Retiro' x Green Giant	\$7.50	\$10.00	
Giant 6-7/16" across petals crossed with dusted pink tetraploid.			

	8-12"	12-18" growths	2
CH18 Brita x Prince Charles 'El-Retiro'	3.50	5.00	
Both fine dusted pinks; results pink triploids.			

	8-12"	12-18" growths	2
CH23 Cygnus 'Everett' x Prince Charles 'Josiah' BA-ODC	\$3.50	5.00	7.50
Both have had 19 flowers to spike. Some extra fine whites to blush expected.			

	8-12"	12-18" growths	2
CH25 Mayfair 'Sultan' x Prince Charles 'Josiah' BM ODC	3.50	5.00	
First to bloom intense clear yellow with touch of apricot on petals. Expect pinks, also.			

	8-12"	12-18" growths	2
CH28 Mayfair 'Sultan' x Balkis 'Belle' BA-ODC	3.50	5.00	7.50
Mayfair very dark red with full shape. Balkis large, fine, white, free blooming.			

	8-12"	12-18" growths	2
CH33 Prince Charles A9-49 x Balkis 'Belle' BA-ODC	3.50	5.00	7.50
Two tetraploids. Soft pink, heavy substance. Crossed to white.			

	8-12"	12-18" growths	2
CH38 Balkis 'Belle' BA-ODC x Green Giant	5.00	7.50	
Have our hopes pinned on this cross. White with huge fern green of very heavy substance, early blooming.			

	8-12"	12-18" growths	2
495 Swallow (Pauwelsii C de H. FCC-RHS x Alexanderi West. FCC-RHS)	3.50	5.00	
A remake of one of the finest crosses ever made. A wide range of colors. Large fine shaped flowers.			

Cypripedium Seedlings

Leaf Spread
3-4" 5-6" Larger

PH11 Leven x Hellas
"Westonbirt"
FCC-RHS \$5.00

First is round fine shape
yellow, no spots. Hellas is
one of finest honey colored
large white margin
on dorsal.

PH12 Emmer Green x
Elizabeth Keeley 26.. 3.50 \$5.00

Two of the best greens.
Clear colors, very fine
shapes. 26 large flower.

PH14 Elizabeth Keeley 26
x Hellas "Weston-
birt" FCC-RHS 7.50 \$10.00

Finest green-yellow crossed
with plant Mr. Alexander
considered probably his best.

PH16 Borburn (Bordube
x Chardmoore) 3.50 5.00

A remake of a very fine
award winning cross. White
with green & tan infusion.

PM105 Rameses "Distinction"
x Bromohur 5.00 7.50

Evenly spotted white dorsal,
green area at bases. Maho-
gany pouch and petals.

PM122 Aigrette "Balleriana"
x Oliviana 3.50 5.00

Expect yellow-green
flowers of good shape.

Miscellaneous and Unusual Type Seedlings

CA1 Lycaste Skinneri x Locusta
FCC-RHS \$3.00

Large, fine pink crossed with
finest award green.

99 Vanda Emma Van Deventer x
Coerulea 3.00

Here same parent that made Nellie Morley
is used with blue Coerulea.
Fine possibilities.

502 Phalaenopsis Doris x Aalsmeer Rose
2 1/2" pot size 2.50

Expecting a fine type pink here.

93 Phalaenopsis Fairway Park (Tommy
Tucker "Monarch" AM-AOS x Winged
Victory "Admiral" BC-ODC)
3" pot size 4.00

Two award winning whites.
Should produce the best.

193 Phalaenopsis Grace Palm (Winged
Victory x Doris) 2 1/2" pot size 2.50

A remake of this fine cross
using a finer Doris.

WK9 Miltonia Warscewiczii x Spectabilis 2.50

A warm growing Miltonia of
Bronze color expected.

Special Values

We have many fine hybrid crosses with only a small quantity of plants available, too few to put on a listing. Hence, we are offering the following assortments at prices which represent a saving over the regular price.

Fine Hybrid Blooming Size Plants

1 plant \$8.50 Two \$15.00 Three \$18.75 Four \$23.00 Five \$27.50

May be Cattleyas, Cymbidiums, Cypripediums, Miltonias, Odontoglossums all of one genera or any combination of the above genera that you desire.

Fine Hybrid Seedlings

Four small seedlings of the above genera are offered at \$10.00. These also may be all of one genera or assorted, whichever you prefer.

We will carefully select these plants and they will all be labeled as to name or cross.

Miltonia Seedlings

		Size 5"-8" 2 growths Larger	
MH19	Alderwood (Solfatari x Wych Cross)	\$5.00	\$7.50
	Yellow shades. Some fine exhibition types have already appeared.		

MH20	Bellingham (Wych Cross x Woodlands alba)....	5.00	7.50
	White ground with pink areas on petals. Some have coal black mask, others brown.		

MH31	Wych Cross x self	\$3.50	5.00
	Parent fine yellow with Apricot overlay.		

MH33	Lingwood x Lyceana 'Stamperland' FCC-RHS	5.00	7.50
	First large solid red. Lyceana large solid red with white margin. Great promise.		

MH34	Lynnwood (Lime-light x H T Pitt)	3.50	5.00
	A remake of our original cross. All flowers shades of red. Plant has small growth habit.		

		Size 5"-8" 2 growths Larger	
MH39	Brama 'Betty Hale' SA-ODC x Limelight' 'Imogene' AM-AOS	5.00	7.50
	Both large, fine shaped reds with white half inch margin edging the lip.		

MH40	Woodlands 'Ebony' x self	5.00	7.50
	Our most spectacular flower. Deep cardinal red throughout, with a black mask outlined in white.		

MH45	Lynnwood 'Dolores' x Woodland 'Ebony'	3.50	5.00
	Variety Dolores is the deepest red, with small growth habit. Fine reds expected.		

MH49	Solfatari x Woodlands 'Ebony'	3.50	5.00
	Our proven stud yellow is used here. Interesting combinations of red and yellow possible.		

MH51	Firefly AM-AOS x Woodlands 'Ebony'	3.50	5.00
	Firefly fine large yellow with large red areas at base of petals and sepals and outlining mask on lip.		

Miltonias bloom early. The two growth plants should bloom within a year. Write for our list of adult and awarded exhibition plants.

Fine Adult Flowering Plants

V108	Jean Sabourin (Aurora x Picadilly)	\$17.50
	Large solid red flowers. A number have been awarded.	

V109	Anjou (Hoggar x Picadilly)	15.00
	Another fine red. Free blooming. This cross has also been awarded.	

Odontoglossums and Odontioda Seedlings

		Size 1 Bulb & NG Larger	
AB50	Oda Toretus x Oda Mayfield	\$5.00	
	Odontiodas can be grown at warmer temperatures than Odontoglossums. Various shades of crimson.		

OH5	O Moonlight x O Alorous	7.50	
	Bloomed several fine ones. One white with purple edging on petals and sepals.		

OH7	Oda Astoria 'Adonis' x Crispum Premier type 'Edmonds'	5.00	
	Fine shape large rose Odontioda with choice white Crispum.		

OH13	O Gavotte x O Crispiana 'Gretchen Hoyt' AM-AOS..	5.00	7.50
	Choice white crossed with award yellow. Seattle Show sweepstakes winner.		

		Size 1 Bulb & NG Larger	
C2	Oda Argia 'Argus' x Oda Aysha	7.50	
	Blooming size. Most combinations of red and crimson. Some fine types have bloomed.		

OH26	O Ismene x O Mirimar 'Hill'	3.50	
	Fine shaped white crossed with clear yellow. Should produce clear light colors.		

CW1	O Crispum 'Polaris' x O Crispum 'Eucharis'	5.00	
	Both fine Premier types. Whites with full round shape and good substance expected.		

1195	O Pedrita x O Petit Ami 'Triomphe' AM-AOS	3.50	5.00
	Expect designs of deep purple. Fine shapes with extra heavy substance.		

Larger Size Should Bloom Within Year

State.

Address _____

Name-

[illegible]

ORDER FORM 9591

Telephone Prospect 8-3597

Seattle Heights, Washington

Gordon M. Hoyt, *Orchids*

We are the Western Representatives for Black & Flory, Ltd., Slough, Bucks, England. A number of plants on this list are their originations. They will be glad to make special quotations on other items.

	\$100 to \$250	\$250 and over
10%		
20%		

The following quantity discounts will apply only to items in this listing with the exception of Special Values and Experiments in Genetics:

Satisfaction is guaranteed as is safe arrival. During the winter weather, we may temporarily hold up shipment. We invite you to visit our greenhouses at any time by appointment. Regular hours are from 10 a.m. to 5 p.m. and on Sunday from 2 p.m.

In this listing, we have generally given the leaf length or number of bulbs since pot size does not mean much when bark is used as the potting medium. Most items will be shipped in Polyethylene bags and it is a very simple matter to transfer the plant from the bag to the proper size pot. We recommend bark as the best potting medium.

Parcel Post zone in the United States.

Parcel Post. We pay the postage. If you desire the plants shipped in pots or by a different method they will be sent F.O.B. Seattle Heights, Washington. Foreign shipments will be allowed the equivalent cost on the transportation as though shipped to the eighth

Bark as well as *Osmunda* fibre.
All items are offered subject to prior sale. Plants will be shipped out of pots via

In addition, we handle all types of Orchid Supplies, including Weyerhaeuser Silva

We are happy to present our most recent offering. This represents but a small portion of our stock and should you be interested in other types such as Botanicals, Masdevallias or various other genera drop us a line and we will be glad to quote you

Instructions for preparing flasks

Many who grow orchids as a hobby have expressed an interest in growing plants from seed but have deterred by the misconception that this involves difficult and intricate procedures. Many are under the impression that a special room or planting case is necessary if one is to be even moderately successful.

Actually, planting seed is a very simple procedure that can be carried out successfully on the kitchen table with simple equipment and excellent results if a little care is taken. We have planted thousands of bottles using the following method.

The first step of course is to prepare the flasks for planting. Several firms have prepared media for sale which are advertised in the AOS Bulletin from time to time. Most of these only need distilled water added.

For those who would like to prepare their own media we can recommend the Chang formula as published in the American Orchid Society Bulletin, Volume 22 - 1953 page 200. This is as follows:

1½ teaspoons Fish Emulsion	5½ level teaspoons sugar
9 level teaspoons agar	1 level teaspoon Peptone
1 liter Distilled water (1000 cc)	pH adjust to 5.0

We have had better results with this formula by substituting 150 cc of regular canned unsweetened pineapple juice for 150 cc of the Distilled water. Some of these items mentioned can of course be purchased at the grocers or local druggists, otherwise at a Scientific supply house. Your druggist can give you the address of the nearest firm in your area. We have used Difco's Bacto-Agar #0140-01 and Difco's Peptone where these two items are called for. You will also need a package of Nitrazine paper, a bottle of Ammonia Water and an eye-dropper to use in adjusting the pH. Also, we recommend using 500 cc pyrex flasks with one hole rubber stoppers.

Mix your ingredients and heat, stirring to prevent sticking to the bottom of the pan. Heat until the mixture is too hot to hold your finger in without burning. It is essential to have all the materials thoroughly dissolved. The Nitrazine paper registers a pH of from 4.5 to 7.5. Now take a piece of this and dip an end in the solution. If pineapple juice has been used it will register 4.5 which is acid and the lowest the paper registers. The paper turns different colors depending on the degree of acidity and this is compared to a color chart on the outside of the Nitrazine container. Now add, drop by drop, Ammonia Water testing often until the color matches the color on the chart marked 5.0. This is about as close as you can come. However 5.2 is better so if possible the slightest shade darker. If the Ammonia Water (Ammonium Hydroxide) has a strength of 28% - 30% NH_3 around 20 drops should bring the pH up to this figure. It will vary depending upon the pineapple juice used and of course if the Ammonia Water is not this strong more drops will be required. Be very careful with the Ammonia and do not inhale deeply or get it in your eyes. If by chance you add too much and get the pH too high, which is easy to do the first few times, use Hydrochloric acid to bring it back down. The same procedure is followed, add the acid drop by drop testing all the time until the paper shows the desired hue.

We are now ready to proceed. We have enough solution to make about 7 - 500 cc flasks. Divide this evenly among the flasks and insert the rubber stoppers. Take some non-absorbent cotton and using a lead pencil plug the hole in the stopper with a small single piece that can easily be removed with the fingers when we are planting the seed but still firmly plugs the hole. Cut a square of aluminum foil of sufficient size to cover the stopper and mouth of the bottle and place on the flask. We are now

ready to place the flasks in an autoclave or pressure cooker. Heat 15 lbs. pressure and cook for 15 minutes. Allow to cool till the pressure is zero and remove the flasks and allow to harden. This takes several hours. You are now ready to plant the seed.

Instructions for planting seed

It is well to equip oneself with the following items before going ahead with the actual planting of the seed.

Small test tube rack

1 pr. rubber gloves

a graduated cylinder (which measures in cubic centimeters)

Half a dozen pyrex test tubes (10 to 20 cc size)

A couple ordinary eye droppers that will reach to the bottom of the short test tubes.

Bernz-O-Matic propane torch (Any hardware store handles)

Package of 4" filter paper (rapid filtering)

Can of chlorinated lime (Calcium Hypochlorite) Available at grocery store.

Small glass funnel to fit folded filter paper.

Distilled water (Most drug stores handle)

Items not otherwise noted may be purchased at Scientific Supply House.

Place all of the glass items in a pan with ordinary tap water and bring to a boil for several minutes to sterilize. This includes the tongs but leave the handles on these out of the water so you can use these to remove the other items. We place the test tube rack in the oven and heat to 300 degrees for several minutes to sterilize.

In the meantime take one level tsp. of Chlorinated Lime and place in the graduated cylinder. To this add 55 cc of water. Shake this well. Now place the test tube rack on the kitchen table and remove the test tubes etc. from the pan and place in the rack. Mix a solution of one part clorox to four parts water in a glass. Put on the rubber gloves and dipping your finger in this solution rub on all parts of the gloves to sterilize. Now take the funnel and fit a filter paper to it and fill two test tubes with filtered Chlorinated Lime solution. Place the seed you are about to plant in a cooled test tube and add a third of a test tube of this filtered solution. Now shake this tube with the seed for several minutes to be sure all parts of the seed are thoroughly moistened. When you remove the glassware from the original pan where you have sterilized it, leave two test tubes in the pan, pour out the original water and this time add distilled water. Boil this for several minutes and then using your sterilized tongs fill each tube with this water and place them in the test tube rack.

Now back to the seed. When the seed is placed in the chlorinated lime the seed that is fertile will turn a golden yellow color. You can generally tell the degree of fertility by the intensity of the color. We allow the seed to remain in the solution for not over 5 minutes. Now using your funnel filter off the excess liquid with a fresh piece of filter paper. You now have the seed on the filter paper. Take one of the tubes of distilled water and cool by holding under the cold water tap allowing the water to run down the outside of the tube but being careful not to get any in it. Now take one of your sterilized eye-droppers and with the cooled distilled water wash the seed from the filter paper into one of the short sterilized test tubes. The extra sterilized test tubes in the rack serve as good holders for the eye droppers while not in use.

Now you have your seed in distilled water in a short test tube. Light your propane torch. Take one of your fingers and remove the foil. Dip your finger in the clorox solution and with a drop moisten the top of the stopper and cotton protruding from the hole. Now heat the neck of the

flask with the torch for a few seconds. This is to expand the air in the flask so when you remove the cotton plug for the few seconds necessary to shoot the mixture of seed and distilled water into the flask with the eye-dropper, air will be moving out of the flask preventing any possibility of mold or bacteria from entering from the air. Now fill your eye dropper with what you think is the right amount of seed and distilled water, pull the cotton plug, shoot the seed into the flask as rapidly as possible and immediately replace the cotton plug. We advise shooting an extra eye dropper of plain sterilized distilled water into the flask immediately after you have shot in the seed. This only takes two or three seconds longer and while it is not absolutely necessary the additional liquid in the flask allows us to distribute the seed more evenly over the surface of the agar. The excess liquid does no harm and has the additional advantage of preventing the flasks from drying out too rapidly over the ensuing months. Replace the foil cover to the flask and after noting the cross on the flask you are finished, with this one. Take the next flask and repeat this procedure. Some suggest placing the planted flask in the dark until the seed germinates. However, we have not found this to be necessary. We just keep them out of the direct sunlight until they are well germinated.

Cymbidium seed is more difficult to handle as this seed tends to stick to glass. Here we use a piece of sterilized wire etc. and carry a blob of seed directly from the filter paper into the hole in the stopper. This is then washed into the flask with an eye dropper of sterilized water.

Once you try this method of planting seed you will see how simple it is. We have taught many to plant seed by just going thru the steps once or at the most twice. We do have an occasional contaminated flask but a very small percentage. If you do have trouble the thing to do is review every step you have taken, recall if you have forgotten to sterilize some item or if you have touched, say the eye dropper to some surface that was not sterilized. We sterilize our gloves several times during the operation with the alcohol. Don't open the kitchen doors rapidly when actual planting is underway as it is best to keep the air as quiet as possible. We make up a lot of flasks in advance, all at one time, and these can be planted over a period of several weeks. One might wonder why the spores in the air do not settle on the seed when it is on the filter paper or on the top of the vial standing in the test tubes. Why, we do not know, but it apparently does not. We have found most of our trouble when we have had trouble once or twice, has been caused by contaminated seed. It is very difficult, if not impossible to sterilize seed sufficiently if it is badly contaminated.

GORDON M. ROYF ORCHIDS
Seattle Heights, Washington

RECOMMENDED CULTURE OF BETULINUS IN A GLASS HOUSE FOR CATTLEYS, CYTISUS, MILONIAN AND THE MANDARIN

We grow in fir bark and use the following mix 1. 1/2 inch pot - 1/2 inch

- 5 - 7" pots of peat moss
- 1 - 7" pot of peat moss
- 2 - 7" pots of Spongy Peat moss
- 1 - 5" pot of dried oak leaves
- 1 - 2 1/2" pot of Hoff & Bain at Bonanza

Mix this thoroughly and then moisten with a gallon of water. It has been added one tablespoon of 2-2-2 and three tablespoons of Anti-Damp.

For small seedlings out of glass we take a six inch pot and fill one third with coarse peat moss. The top third is then filled with the mixture just given and the pot is then watered, keeping the surface of the mixture 1/2 inch above the level of the pot. Using a lead pencil to mark the level of the pot, the seedlings are carefully planted to avoid any damage to the roots. After the seedlings are planted, we immediately take a fine fog nozzle spray and water them. The plants are then placed in a minimum night temperature of 70 degrees and we try to maintain a day temperature of not over 90 degrees, however, more periods of than this apparently do not harm. We try to maintain a humidity of between 60 to 70 although in the middle of a hot sunny day it will fall below this. When the outside temperature reaches a point where the inside temperature exceeds 90 we open the ventilators to cool off the house. However, the humidity is not nearly so important as seedling and the seedlings are given enough water at the roots. This will compensate for lack of humidity in areas where ventilation is poor. As to the amount of moisture that the plants receive we are guided by how damp the pots are. In our area we find it is necessary to give the plants a watering with a fine hose spray about two days out of three. We try not to let them dry out but to keep them moderately moist. About a week we water them with a good shield fertiliser of 10-10-10 or 10-20-20, using 1 teaspoon to a gallon of water. This is more than the instructions call for, but we have found that we have better results by giving more fertilizer than recommended by the manufacturers. In the winter when the days are short we supplement the light with artificial light, giving 200 to 300 ft. candles for a period of 12 hours per day.

It has been our experience that the seedlings seem to grow better and faster in community pots than they do if removed to small pots. Many times we leave the seedlings in the original community pots for a period of 18 months. At that time we find a number of the plants are ready to go direct into three inch pots. We have found a regular habit of spraying to control insects, slugs and snails. For slugs and snails we use Slug Pests or Slug-It and for spider mites we use Spider Mite. In addition we use a spray of 1000 parts per million of DDT. It is very important to many growers to have a regular habit of spraying.

GEORGE H. HOYT - ORANGE
Seattle Heights, Washington

RECOMMENDED CULTURE FOR MILTONIAS & ODONTOGLOSSUMS

The only difference between the culture that we use for miltonias and odontoglossums is the temperature. We maintain a night temperature of 56 - 60 degrees for miltonias and they do not like to go below this as they are subject to black spot if grown at too cool a temperature unless the watering is watched very, very closely. We endeavor to maintain a day temperature of not over 80 for this genus.

On odontoglossums, we grow these at a night temperature of between 50 - 55 degrees and try to maintain a day temperature under 80. Higher temperatures than this do not agree here unless extended over a long period of time. During the hot summer months, many people in areas where high temperatures prevail for the season under the bench where poorer conditions exist. However, care should be taken not to get water into the new growth if this procedure is followed. We shade both miltonias and odontoglossums rather heavily during the summer months, giving them 600 to 1000 ft. candles of light. During the cool weather we increase this substantially. In fact, we generally have our glass clear. We give them lots of water both winter and summer and never let the pots dry out. This is where many people fail. They endeavor to grow the odontoglossums and miltonias like cactuses and keep them, as a rule, much too dry. However, they do not want to be kept soggy wet.

We are growing our miltonias and odontoglossums now in bark with very good results. We use the better quality bark, filling the pot about two-thirds full with this material. The top one-third is then filled with the small size bark which has been added a little peat moss and bone-ash. Both genera are watered for the first week with either 5-1-2 or Orchid Special. We use one quart of a gallon of water. We recommend a regular spraying program as they are subject to attack at times by spider mites and aphids which attack the flower buds. The biggest danger, however, is from slugs and snails, especially the snails which are very hard to control. For these we recommend dipping the whole pot in a solution of slug bait or slug oil. The best material we have found for slugs is chlorinated which kills all types and one application generally gives effective control for three to four months.

Osmunda can be used as a potting material and when we used osmunda, we used straight osmunda and followed the same procedure, as to culture, as recommended for bark.

When possible, we try to maintain a humidity of around 70 percent. However, in the heat of the day this falls very substantially; but if enough water is given at the roots, this is not too serious.

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